UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/973,757	10/11/2001	Masatake Tamaru	VX012372	7173

21369 7590 09/12/2006

POSZ LAW GROUP, PLC
12040 SOUTH LAKES DR.
SUITE 101
RESTON, VA 20191

EXAMINER	
CHOI, PETER H	

ART UNIT	PAPER NUMBER
3623	

DATE MAILED: 09/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/973,757	TAMARU, MASATAKE	
	Examiner	Art Unit	
	Peter Choi	3623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 June 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-32* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-32* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. The following is a **NON-FINAL** office action upon examination of application number 09/973,757. Claims 1-17, and 19-32 have been amended in the amendment filed June 21, 2006. Claims 1-32 are pending in the application and have been examined on the merits discussed below.

Response to Amendment

2. The objection to the abstract is withdrawn in view of the amended abstract submitted by preliminary amendment on October 11, 2001.

Response to Arguments

3. Applicant's arguments filed March 20, 2006 have been fully considered but they are not persuasive.

Applicant has attempted to challenge the Examiner's taking of Official Notice in the Office Action mailed December 20, 2005. There are minimum requirements for a challenge to Official Notice:

(a) In general, a challenge, to be proper, must contain adequate information or arguments so that *on its face* it creates a reasonable doubt regarding the circumstances justifying the Official Notice

(b) Applicants must seasonably traverse (challenge) the taking of Official Notice as soon as practicable, meaning the next response following an Office Action. If an applicant fails to seasonably traverse the Official Notice during examination, his right to challenge the Official Notice is waived.

Applicant has not provided adequate information or arguments so that *on its face* it creates a reasonable doubt regarding the circumstances justifying the Official Notice. Therefore, the presentation of a reference to substantiate the Official Notice is not deemed necessary. The Examiner's taking of Official Notice has been maintained.

Bald statements such as, "the Examiner has not provided proof that this element is well known" or "applicant disagrees with the Examiner's taking of Official Notice and hereby requests evidence in support thereof", are not adequate and do not shift the burden to the Examiner to provide evidence in support of the Official Notice.

In the previous Office Action mailed December 20, 2005, notice was taken by the Examiner that certain subject matter is old and well known in the art. Per MPEP 2144.03(c), these statements are taken as admitted prior art because no traversal of this statement was made in the subsequent response. Specifically, it has been taken as prior art that:

- It is old and well known in the arts to notify relevant parties of the status and availability (or unavailability) of work machines at a site

Applicant argues that Melby fails to teach or suggest that work machine information is transmitted to the at least one main work machine through the first communication means, with the server apparatus connected to the main work machine.

The Examiner respectfully disagrees. The claim language merely recites that the connection of work machines to a server apparatus is "configured to facilitate" reciprocal communications but does not actively perform reciprocal communication. The Melby system is clearly capable of performing such functionality, in that local controller 36 is adapted to receive and store data (i.e., "work machine information) from each of the receivers 35, which are in bi-directional communication with data acquisition units 32 and wireless communications systems 34 (i.e., first communication means). Data acquisition devices 32 sense and store the desired operating conditions for each of the forklifts 31 during use. Each of the forklifts 31 is further provided with a transmitter 33 or other communications system for transmitting the acquired data from the data acquisition device 32 to the remote analysis system 50 (i.e., server apparatus) for analysis [Column 7, lines 3-8, 14-21, 38-39].

Applicant argues that Melby fails to teach or suggest that the server apparatus transmits the management information to the at least one main work machine through the second communication means.

The Examiner respectfully disagrees. The claim language merely recites that the connection of work machines to a server apparatus is "configured to facilitate" reciprocal communications but does not actively perform reciprocal communication. The Melby system is clearly capable of performing such functionality, in that each work machine has a transmitter 33 for transmitting acquired data (i.e., management information) from the data acquisition device 32 to the remove analysis system 50 (i.e., server apparatus) via modems 37 or 52 or the Internet 40 (i.e., second communication means) [Column 7, lines 5-8, Column 8, lines 23-30, 48-52, Figure 3].

Applicant argues that Melby fails to teach or suggest at least one main work machine transmits the work instructions to the other work machines through the first communication means.

The Examiner respectfully disagrees. Remote analysis system 50 generates management reports that advise the person or entity that owns or operates asset 31 (i.e., work instructions) [Column 11, lines 42-44]. As seen in Figure 3, reports would be transmitted via Internet 40 and model 37 to local controller 36 and receiver 35. Receiver 35 is further connected to forklifts 31 (i.e., work machine) via wireless communications

system 34 (i.e., first communication means). Similarly, information received from forklift 31 are transmitted via wireless communication means 34 to receiver 35, which in turn, is connected to another forklift 31. Thus, the work instructions are transmitted to other work machines through the first communication means.

Applicant argues that, in Melby, work instructions cannot be transmitted to other work machines through a communication means from the operator of the main work machine.

The Examiner respectfully disagrees. As pointed out above, remote analysis system 50 generates management reports that advise the person or entity that owns or operates asset 31 (i.e., work instructions) [Column 11, lines 42-44]. As seen in Figure 3, reports would be transmitted via Internet 40 and model 37 to local controller 36 and receiver 35. Receiver 35 is further connected to forklifts 31 (i.e., work machine) via wireless communications system 34 (i.e., first communication means). Similarly, information received from forklift 31 are transmitted via wireless communication means 34 to receiver 35, which in turn, is connected to another forklift 31. Thus, the work instructions are transmitted to other work machines through the first communication means. Furthermore, there is no language in the claims specifying that an operator does the transmission of work machines to other work machines.

4. Applicant's arguments, see page 29-30, filed June 21, 2006, with respect to inherency have been fully considered and are persuasive. The inherency of work orders comprising multiple tasks and work processes, the inherency of handheld devices containing display monitors, and the inherency of work machines having a plurality of work processes specific to each work machine have been withdrawn.

Applicant has challenged the Examiner assertion of certain elements that are inherent to the reference and the art. A further explanation of the Examiner's position is provided in the updated art rejection below.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1-32 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

7. Regarding claims 1, 6, 14, 16, 22, 30, 31 and 32, the work machines as claimed is merely "configured to" facilitate reciprocal communications; however the system does not actually communicate reciprocally. For the purposes of examination, the examiner assumes the applicant will amend the claim to recite that said work machines actually

communicate reciprocally.

Use of the phrase "configured to" implies that the recited steps are optional, thereby rendering the scope of claims 1, 6, 14, 16, 22, and 30-32 indefinite. It has been held that the recitation that an element is "adapted to" perform, is "capable of" or "configured to" perform a function is not a positive limitation but only requires the ability to so perform.

Claims 2-5, 7-13, 15, 17-21, and 23-29 are dependent on claims 1, 6, 14, 16, 22, 30, 31 and 32 above and thus are also rejected.

8. Claim 16 cites a server and a server apparatus. It is unclear whether the server and the server apparatus are the same, as "the server apparatus" would otherwise lack antecedent basis. The Examiner has assumed that the claimed server is actually a server apparatus, as is the case in claim 14. Correction is required.

9. Claim 26 recites "said work condition information". It is unclear whether this is a reference to work machine information or position information. "Work condition information" lacks antecedent basis in claim 26 and claim 1, the claim on which claim 26 is dependent on. For examination purposes, the Examiner has assumed that "work condition information" is a reference to position information. Correction is required.

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

11. Claims 1, 4-6, 9-15, 19-21 and 23-32 are rejected under 35 U.S.C. 102(e) as being anticipated by Melby et al. (U.S Patent 6,952,680).

As per claim 1, Melby et al. teaches a work machine management system for work machines that perform prescribed work by operation of a plurality of work machines, comprising:

(a) a plurality of work machines **(assets 11 – a plurality of pieces of movable industrial equipment; forklifts 31)**, said plurality of work machines being connected by a first communication means **(each of the forklifts 31 is further provided with a transmitter 33 or other communications system for transmitting the acquired data from the data acquisition device 32 to the remote analysis system 50 for analysis)** configured to facilitate reciprocal communications **(transmitter 33 is preferably embodied as a wireless communications system, such as represented by an antenna 34; the transmitters 33 and the wireless**

communications systems 34 can be embodied as conventional radio frequency transmitters provided on each of the forklifts 31 that transmit electromagnetic signals; wireless communications systems 34 are adapted to transmit signals that are representative of the sense operating conditions of the forklifts 31 through space to a receiver 35; the data acquisition units 32 and the receivers 35 are in bi-directional communication with one another) [Column 3, lines 55-57, Column 7, lines 5-8, 14-27, 38-39];

(b) a server apparatus **(remote analysis system 50)**, wherein at least one main work machine of said plurality of work machines **(local controller 36 that is adapted to receive and store data from each of the receivers 35 and to periodically transmit gathered and stored information regarding the individual operating characteristics to the remote analysis system 50 for analysis)** is connected to the server apparatus by a second communication means **(modem 52 or similar communications device; conventional modem 37 or other communications device; electronic communications network, such as the internet 40)** configured to facilitate reciprocal communications [Column 7, lines 62-67, Column 8, lines 23-30, 48-52];

(c) wherein each of said plurality of work machines is provided with work machine information detection means **(data acquisition device 32 is provided on each of the forklifts 31 for sensing and storing one or more characteristics of the associated forklift)** for detecting work machine information **(operational characteristics of the particular asset 11 being tracked, such as the physical**

requirements or limitations of the asset (mast height, load capacity, types of tires, for example), the type of fuel used, and the period of time or usage between the performance of periodic maintenance; time duration of use (and non-use), distances traveled, the extent of fork usage, the nature of hydraulic system utilization, and the like) [Column 4, lines 34-44, Column 6, lines 48-50, 52-63];

(d) a database **(analysis controller database 78)** for storing data for managing said plurality of work machines **(real-time and historical information; maintenance information performed {step 82})**, and management information production means for production management information **(determine that further preventative maintenance is required)** based on said work machine information and on said data stored in said database, provided at said server apparatus [Column 12, lines 18-19, 56-57];

(e) in conjunction with work progress of said plurality of work machines, said work machine information is detected by said work machine information detection means provided in said plurality of work machines and the work machine information so detected is transmitted to said at least one main work machine **(each of the forklifts 31 is further provided with a transmitter 33 or other communications system for transmitting the acquired data from the data acquisition device 32 to the remote analysis system 50 for analysis)** through said first communication means [Column 7, lines 5-8, 14-27, 38-39];

(f) said at least one main work machine transmits said transmitted work machine information to said server apparatus **(remote analysis system 50)** through

said second communication means **(each of the forklifts 31 is further provided with a transmitter 33 or other communications system for transmitting the acquired data from the data acquisition device 32 to the remote analysis system 50 for analysis)** [Column 7, lines 5-8, 14-27, 38-39];

(g) said server apparatus **(remote analysis system 50)** produces said management information **(automatically generate maintenance and warranty reports in response to received information regarding assets 31; automatically generate and analyze management reports relating to the procurement and utilization of a plurality of the forklifts 31)** based on said transmitted work machine information and on said data stored in said database **(real-time and historical information; determine that further preventative maintenance is required)**, and transmits the management information so produced to said at least one main work machine through said second communication means **(all of the reports generated are automatically delivered through the Internet 40)** [Column 6, lines 60-63, Column 15, lines 30-41]; and

(h) said at least one main work machine transmits work instructions to other work machines of said plurality of work machines **(management report can advise the person or entity that owns or operates the asset 31; carrying out said work order to maintain the asset)** through said first communication means **{As seen in Figure 3, reports would be transmitted via Internet 40 and model 37 to local controller 36 and receiver 35, which is further connected to forklifts 31 (i.e., work machine) via wireless communications system 34 (i.e., first communication means); forklifts 31**

are connected to a plurality of other forklifts via the wireless communications system 34 and receiver 35; thus, reports are transmitted between work machines via the wireless communications system 34}, based on said transmitted management information [Column 11, lines 42-44; Claim 9].

As per claim 4, Melby et al. teaches the work machine management system according to claim 1, wherein said management information produced by said server apparatus and transmitted to said at least one main work machine is information relating to maintenance that should be performed on any of said plurality of work machines **(Once it is determined that maintenance of some type is required based on an analysis of the operational status of asset 31, a maintenance report is generated and made available electronically by the Internet)** [Column 16, lines 26-30].

As per claim 5, Melby et al. teaches the work machine management system according to claim 1, wherein said management information produced by said server apparatus and transmitted to said at least one main work machine is information relating to a trouble that has occurred in any of said plurality of work machines **(fault code may be generated based on the actions of the asset operator)** [Column 16, lines 6-7].

As per claim 6, Melby et al. teaches a work machine management system for work machines that perform prescribed work by operation of a plurality of work machines in accordance with a schedule work plan, comprising:

(a) a plurality of work machines, said plurality of work machines being connected by a first communication means configured to facilitate reciprocal communications [see discussion of claim 1(a) above];

(b) a server apparatus, wherein at least one main work machine of said plurality of work machines is connected to the server apparatus by a second communication means configured to facilitate reciprocal communications [see discussion of claim 1(b) above];

(c) wherein each of said plurality of work machines is provided with work machine information detection means for detecting work machine information [see discussion of claim 1(c) above];

(d) a database **(analysis controller database 78)** for storing data for managing said plurality of work machines **(real-time and historical information; maintenance information performed {step 82})**, and scheduled work plan production means for producing a schedule work plan **(work order 166 is generated based on approved preventative maintenance)** based on said work machine information data and on said data stored in said database, provided at said server apparatus end [Column 12, lines 18-19, 56-57, Column 17, lines 1-6];

(e) in conjunction with work progress of said plurality of work machines, work machine information is detected by said work machine information detection means provided in said plurality of work machines, and the work machine information so detected is transmitted to said at least one main work machine or machines through said first communication means [see discussion of claim 1(e) above];

(f) said at least one main work machine transmits said transmitted work machine information to said server apparatus through said second communication means [see discussion of claim 1(f) above];

(g) said server apparatus produces a scheduled work plan **(work order 166)**, based on said transmitted work machine information and on said data stored in said database **(work order 166 is generated based on approved preventative maintenance)**, and transmits that scheduled work plan so produced to said at least one main work machine through said second communication means **(work order 166 is sent electronically to appropriate maintenance personnel that contains all of the critical operating data required to effectively schedule and carry out the maintenance)** [Column 17 lines 1-9]; and

(h) said at least one work machine transmits said work instructions to other work machines of said plurality of work machines through said first communication means, based on said transmitted schedule work plan [see discussion of claim 1(h) above].

As per claim 9, Melby et al. teaches the work machine management system according to claim 6, wherein said server apparatus transmits information relating to maintenance that should be done to any of said plurality of work machines, and said server apparatus transmits a revised scheduled work plan produced by revising the scheduled work plan in conjunction with the performance of maintenance **(work order 166 is sent electronically to appropriate maintenance personnel that contains all**

of the critical operating data required to effectively schedule and carry out the maintenance), to said at least one main work machine [Column 17, lines 5-9].

As per claim 10, Melby et al. teaches the work machine management system according to claim 6, further comprising:

(a) a terminal apparatus **(handheld device 168)** provided on an end where maintenance is done on said plurality of work machines, said terminal apparatus being connected to said second communication means **(handheld device 168 is in real-time two way communication with analysis controller database 78)** [Column 17, lines 25-27];

(b) wherein said server apparatus transmits information relating to maintenance that should be done to any of said plurality of work machines, and transmits a revised scheduled work plan produced by revising the scheduled work plan in conjunction with the performance of maintenance, to said at least one main work machine **(work order 166 is transmitted electronically to a handheld device 168 associated with specific maintenance personnel assigned to carry out the maintenance)** [Column 17, lines 5-9, 21-27]; and

(c) wherein said at least one main work machine transmits instructions for performing maintenance, based on the transmitted information relating to maintenance **(information concerning anticipated parts and the nearest location from where they may be retrieved based on information contained within the fault code or retrieved from the knowledgebase)**, to said terminal apparatus through said second

communication means, and transmits work instructions to other work machines of said plurality of work machines based on said revised scheduled work plan [Column 17, lines 12-16].

As per claim 11, Melby et al. teaches the work machine management system according to claim 6, wherein said server apparatus transmits information relating to trouble that has arisen in said plurality of work machines **(fault codes)**, and a revised scheduled work plan produced by revising the scheduled work plan responsive to the troubles **(work order 166 is sent electronically to appropriate maintenance personnel that contains all of the critical operating data required to effectively schedule and carry out the maintenance)**, to said main at least one main work machine [Column 17 lines 5-9].

As per claim 12, Melby et al. teaches the work machine management system according to claim 6, further comprising:

(a) a trouble correction terminal apparatus **(handheld device 168)** provided on the end where trouble with said plurality of work machines is corrected, the trouble correction terminal being connected to said second communication means **(handheld device 168 is in real-time two way communication with analysis controller database 78)** [Column 17, lines 25-27];

(b) wherein said server apparatus transmits information relating to the trouble **(fault code)**, and a revised scheduled work plan produced by revising the scheduled

work plan responsive to the trouble, to said at least one main work machine **(work order 166 is transmitted electronically to a handheld device 168 associated with specific maintenance personnel assigned to carry out the maintenance; work order 166 is sent electronically to appropriate maintenance personnel that contains all of the critical operating data required to effectively schedule and carry out the maintenance)** [Column 17, lines 5-9, 21-27]; and

(c) wherein said at least one main work machine transmits instructions for correcting the troubles, based on the information relating to the trouble **(information concerning anticipated parts and the nearest location from where they may be retrieved based on information contained within the fault code or retrieved from the knowledgebase)**, to said trouble correction terminal apparatus through said second communication means, and transmits work instructions to other work machines of said plurality of work machines through said first communication means in accordance with said revised scheduled work plan [Column 17, lines 12-16].

As per claim 13, Melby et al. teaches the work machine management system according to claim 6, wherein said server apparatus stores in memory schedule and performance results data indicating relationship between a scheduled work plan previously produced and an actual work performance result as performed in accordance with said scheduled work plan **(determine whether a predetermined period of time has elapsed in order to generate a periodic management report covering some or all of the assets being tracked; real-time and historical information; maintenance**

information performed {step 82}; determine whether scheduled maintenance has been performed, and determining the party responsible for certain maintenance activities; information regarding maintenance performed is stored in database 78), and said server apparatus produces a new scheduled work plan responsive to said schedule and said performance results data [Column 11, lines 64-66, Column 12, lines 18-19, 56-57].

As per claim 14, Melby et al. teaches a scheduled work plan production apparatus that, in cases where a scheduled work plan is produced according to work request data indicating particulars of work requested by an ordering party, and work is caused to be done, using a plurality of work machines, based on said produced scheduled work plan, produces said scheduled work plan, comprising:

a plurality of work machines **(assets 11 – a plurality of pieces of movable industrial equipment; forklifts 32)** [Column 3, lines 55-57];

a server apparatus **(remote analysis system 50)** [Column 7, lines 8 , Figure 3];

(a) a database **(analysis controller database 78)** for storing schedule and performance results data indicating a relationship between a scheduled work plan previously produced and an actual work performance result as performed on basis of a scheduled work plan **(determine whether a predetermined period of time has elapsed in order to generate a periodic management report covering some or all of the assets being tracked; real-time and historical information; maintenance information performed {step 82}; determine whether scheduled maintenance has**

been performed, and determining the party responsible for certain maintenance activities) the data base being provided **(information regarding maintenance performed is stored in database 78)** at said server apparatus **(remote analysis system 50 {which is also connected to an electronic communications network})** [Column 11, lines 64-66, Column 12, lines 18-19, 56-57]

(b) a terminal apparatus **(handheld device 168)** on an end of an ordering party, wherein said terminal apparatus and said plurality of work machines are connected by a communication means configured to facilitate reciprocal communications **(handheld device 168 is in real-time two way communication with analysis controller database 78)** [Column 17, lines 25-27];

(c) wherein said work request data **(handheld device 168 is in real-time two way communication with analysis controller database, thus, dealer billing systems, inventory listings, customer work order approval records, fleet management information can be accessed by handheld device 168; handheld device 168 is used to update database 78 including labor information and an identification of any parts required to effect a repair)** are input from said terminal apparatus on said ordering party end [Column 17, lines 24-30, 35-38];

(d) wherein said server apparatus produces a scheduled work plan based on input work request data and on a schedule and performance results data stored in said database, and said server apparatus transmits said scheduled work plan to said plurality of work machines through said communication means, and updates said schedule and performance results data in said database **(work order 166 is**

transmitted electronically to a handheld device 168 associated with specific maintenance personnel assigned to carry out the maintenance; work order 166 is sent electronically to appropriate maintenance personnel that contains all of the critical operating data required to effectively schedule and carry out the maintenance; remote analysis system 50 automatically updates individual records associated with each of the assets with information {such as fault codes, maintenance problems, when routine maintenance is required} received from the Internet) [Column 2, lines 55-57, Column 17, lines 5-9, 21-27];

(e) said plurality of work machines performing work based on said scheduled work plan **(work order 166)** transmitted from said server apparatus, and said plurality of work machines transmitting actual work performance result as performed on a basis of said scheduled work plan to said server apparatus through said communication means **(carrying out said work order to maintain the asset)** [Claim 9]; and

(f) wherein said server apparatus **(remote analysis system 50)** updates said database **(analysis controller database 78**) with said actual work performance result **(remote analysis system 50 automatically updates individual records associated with each of the assets with information {such as fault codes, maintenance problems, when routine maintenance is required} received from the Internet)** [Column 2, lines 55-57].

As per claim 15, Melby et al. teaches the scheduled work plan production apparatus according to claim 14, wherein:

(a) when revision data for revising scheduled work plan are provided, said server apparatus revises the scheduled work plan based on those revision data, said work request data, and said schedule and said performance results data **(handheld device 168 is used to update database 78, including labor information and an identification of any parts required to effect a repair)**, to produce a revised scheduled work plan, and said server apparatus transmits said revised scheduled work plan to said plurality of work machines through said communication means **(handheld device 168 is in real-time two way communication with analysis controller database)** [Column 2, lines 55-57, Column 17, lines 24-27, 35-38]; and

(b) said plurality of work machines performing work based on the revised scheduled work plan **(carrying out said work order to maintain the asset)**, and said plurality of work machines transmitting the actual work performance results on a basis of said schedule work plan to said server apparatus by said communication means **(remote analysis system 50 automatically updates individual records associated with each of the assets with information {such as fault codes, maintenance problems, when routine maintenance is required} received from the Internet)** [Column 2, lines 55-57; Claim 9].

As per claim 19, Melby et al. teaches the work machine management system according to claim 1, further comprising:

(a) an information display for displaying information outside of a work site where said plurality of work machines are operating, installed in the periphery of said

work site **(receiver 35 that is provided at a fixed location within the environment in which they are operated; receiver 35 may be provided on movable structures that move about the environment to receive the information transmitted thereon)** [Column 7, lines 24-37];

(b) wherein said server apparatus produces information relating to said work site, based on said work machine information and on the data stored in said database, and transmits said information relating to said work site to said main work machine through said second communications means [see analysis of claim 1(g) above];

(c) wherein said main work machine **(local controller 36)** displays said information relating to said work site on said information display **(receiver 35 confirms the accuracy and completeness of information transmitted by data acquisition unit 32; local controller 36 is connected to receiver 35)** [Column 7, lines 38-53 and 62].

As per claim 20, Melby et al. teaches the work machine management system according to claim 19, wherein said main work machine causes the information relating to said work site to be displayed on said information display installed in the periphery of said work site via said first communication means **(wireless communications system 34 is adapted to transmit signals that are representative of the sensed operating conditions of the forklifts 31 to a receiver 35 that is provided at a fixed location within the environment in which they are operated)** [Column 7, lines 24-37].

As per claim 21, Melby et al. teaches the work machine management system according to claim 1, further comprising:

(a) an information display for providing information outside of a work site where said plurality of work machines are operating is installed in the periphery of said work site **(wireless communications system 34 is adapted to transmit signals that are representative of the sensed operating conditions of the forklifts 31 to a receiver 35 that is provided at a fixed location within the environment in which they are operated)** [Column 7, lines 24-37]; and

(b) wherein said server apparatus **(remote analysis system 50)** produces information relating to said work site, **(automatically generate maintenance and warranty reports in response to received information regarding assets 31; automatically generate and analyze management reports relating to the procurement and utilization of a plurality of the forklifts 31)** based on work machine information that has been transmitted and on said data stored in said database **(real-time and historical information; determine that further preventative maintenance is required)**, transmits said information relating to said work site to said information display through second communication means, and causes said information relating to said work site to be displayed on said information display **(receiver 35 that is provided at a fixed location within the environment in which they are operated; receiver 35 may be provided on movable structures that move about the environment to receive the information transmitted thereon)** [Column 7, lines 24-37].

As per claim 23, Melby et al. teaches the work machine management system according to claim 1, wherein data on performance results for work performed by said plurality of work machines are stored in said database **(analysis controller database 78)** in said server apparatus for each of said plurality of work machines **(real-time and historical information; maintenance information performed {step 82})**, and when data requesting production of a work report relating to a specific work machine are transmitted from said main work machine to said server apparatus **(local controller 36 that is adapted to receive and store data from each of the receivers 35 and to periodically transmit gathered and stored information regarding the individual operating characteristics to the remote analysis system 50 for analysis)** through said second communication means **(modem 52 or similar communications device; conventional modem 37 or other communications device; electronic communications network, such as the internet 40)**, said server apparatus reads out work performance results data corresponding to said specific work machine from data recorded in said database, said server apparatus produces a work report indicating particulars of work performed in a certain time period by said specific work machine **()**, and said server apparatus transmits said work report so produced to said main work machine by said second communication means, and said main work machine manages said plurality of work machines based on said work report **(management report can advise the person or entity that owns or operates the asset 31; carrying out said work order to maintain the asset)** [Column 7, lines 62-67, Column 8, lines 23-30, 48-52, Column 11, lines 42-44, Column 12, lines 18-19, 56-57; Claim 9].

As per claim 24, Melby et al. teaches the work machine management system according to claim 23, wherein:

(a) a terminal apparatus for labor management **(handheld device 168)** is provided on the end where labor management is performed for persons on board said plurality of construction machines **(handheld device 168 is associated with specific maintenance personnel assigned to carry out the maintenance)** and wherein said main work machine are connected by communication means configured to facilitate reciprocal communications **(handheld device 168 is in real-time two way communication with analysis controller database 78)** [Column 17, lines 25-27];

(b) wherein said main work machine transmits said work report to said terminal apparatus for labor management by said communication means **(work order 166 is transmitted electronically to a handheld device 168 associated with specific maintenance personnel assigned to carry out the maintenance; work order 166 is sent electronically to appropriate maintenance personnel that contains all of the critical operating data required to effectively schedule and carry out the maintenance)** [Column 17, lines 5-9, 21-27]; and

(c) wherein said terminal apparatus for labor management performs labor management for those on board said plurality of construction machines based on said work report so transmitted **(information concerning anticipated parts and the nearest location from where they may be retrieved based on information contained within the fault code or retrieved from the knowledgebase; in response**

to a fault code, electronic checklist 154 is to be completed by asset operator on a regular basis in accordance with OSHA requirements) [Column 17, lines 12-16].

As per claim 25, Melby et al. teaches the work machine management system according to claim 1, wherein:

(a) said work machine information is work condition information indicating actual work conditions of a work machine **(operational characteristics of the particular asset 11 being tracked, such as the physical requirements or limitations of the asset (mast height, load capacity, types of tires, for example), the type of fuel used, and the period of time or usage between the performance of periodic maintenance; time duration of use (and non-use), distances traveled, the extent of fork usage, the nature of hydraulic system utilization, and the like)** [Column 4, lines 34-44, Column 6,lines 48-63];

(b) data on schedule of work to be performed by said plurality of work machines **(maintenance invoice)** are stored in a database in said server apparatus **(maintenance organization 86 both receives and provides information to database 78)**, for each of said plurality of work machines [Column 11, line 61 – Column 12, line 4, Column 12, lines 34-36] ;

(c) wherein, when said work condition information is transmitted from said main work machine to said server apparatus through said second communication means, said server apparatus reads out said work schedule data from data stored in said database, compares said work schedule data and said work condition information,

and, when there is a discrepancy, produces anomaly information indicating that an anomaly has occurred in corresponding work machine **(automatically generate maintenance and warranty reports in response to received information regarding assets 31; automatically generate and analyze management reports relating to the procurement and utilization of a plurality of the forklifts 31)**, and transmits said anomaly information **(Once it is determined that maintenance of some type is required based on an analysis of the operational status of asset 31, a maintenance report is generated and made available electronically by the Internet)** to said main work machine through said second communication means **(fault code may be generated based on the actions of the asset operator)** [Column 6, lines 60-63, Column 15, lines 30-41, Column 16, lines 6-7, and lines 26-30]; and

(d) wherein said main work machine manages said plurality of work machines based on said transmitted anomaly information **(management report can advise the person or entity that owns or operates the asset 31; carrying out said work order to maintain the asset)** [Column 11, lines 42-44; Claim 9].

As per claim 26, Melby et al. teaches the work machine management system according to claim 1, wherein:

(a) said work machine information includes position information indicating an actual position of a work machine **(operational characteristics of the particular asset 11 being tracked, such as the physical requirements or limitations of the asset (mast height, load capacity, types of tires, for example), the type of fuel used, and**

the period of time or usage between the performance of periodic maintenance; time duration of use (and non-use), distances traveled, the extent of fork usage, the nature of hydraulic system utilization, and the like) [Column 4, lines 34-44, Column 6,lines 48-63];

(b) operating position data reflecting operating positions at which said plurality of work machines operate are stored in the database **(real-time and historical information stored in analysis controller database 78; maintenance information performed {step 82})** [Column 12, lines 18-19, 56-57];

(c) wherein, when said position information is transmitted from said main work machine to said server apparatus through said second communication means, said server apparatus through said second communication means, wherein, when said work condition information is transmitted from said main work machine to said server apparatus through said second communication means, **{data from data acquisition device 34 is transmitted to local controller 36 for transmission to database 78, and local controller 36 is connected to remote analysis system 50 via the Internet 40; thus database 78 has the ability to communicate with remote analysis system 50 via the Internet 40, as seen in Figure 3}** said server apparatus reads out said operating position data from said data stored in said database, compares said operating position data and said position information, and, when the position information deviates from the operating position data, produces anomaly information **(fault code may be generated based on the actions of the asset operator {such as incorrect/unscheduled operating position} changes in operational parameters**

associated with asset 31 may result in the generation of a specific fault code) indicating that an anomaly has occurred in corresponding work machine, and transmits said anomaly information so produced to said main work machine by said second communication means [Column 15, lines 17-20, 54-62, Column 16, lines 6-7, Column 17, lines 25-27, Figure 3]; and

(d) said main work machine manages said plurality of work machines based on said transmitted anomaly information **(management report can advise the person or entity that owns or operates the asset 31; carrying out said work order to maintain the asset)** [Column 11, lines 42-44; Claim 9].

As per claim 27, Melby et al. teaches the work machine management system according to claim 1, wherein:

(a) said work machine information includes attitude information indicating an actual attitude of a work machine **(operational characteristics of the particular asset 11 being tracked, such as the physical requirements or limitations of the asset (mast height, load capacity, types of tires, for example), the type of fuel used, and the period of time or usage between the performance of periodic maintenance; time duration of use (and non-use), distances traveled, the extent of fork usage, the nature of hydraulic system utilization, and the like)** [Column 4, lines 34-44, Column 6,lines 48-63];

(b) attitude limit values for said plurality of work machines are stored in the database in said server apparatus **(real-time and historical information stored in**

analysis controller database 78; maintenance information performed {step 82}) in said server apparatus [Column 12, lines 18-19, 56-57];

(c) wherein when said attitude information is transmitted from said main work machine to said server apparatus through said second communication means, said server apparatus reads out said attitude limit values from said data stored in said database, compares said attitude limit values and said attitude information, and, when the attitude information exceeds the attitude limit values, produces anomaly information indicating that an anomaly has occurred in corresponding work machine **(fault code may be generated based on the actions of the asset operator {such as actual attitude exceeding attitude limit value}; changes in operational parameters associated with asset 31 may result in the generation of a specific fault code)**, and transmits said anomaly information to said main work machine through said second communication means [Column 15, lines 54-62, Column 16, lines 6-7]; and

(d) wherein said main work machine manages said plurality of work machines based on said transmitted anomaly information **(management report can advise the person or entity that owns or operates the asset 31; carrying out said work order to maintain the asset)** [Column 11, lines 42-44; Claim 9].

As per claim 28, Melby et al. teaches the work machine management system according to claims 25, wherein:

(a) an anomaly handling terminal apparatus **(handheld device 168)** provided on the end anomaly handing is performed for a construction machine where an anomaly

has occurred, and said anomaly handling terminal apparatus and said server apparatus are connected by a third communication means configured to facilitate reciprocal communications **(handheld device 168 is in real-time two way communication with analysis controller database 78; data from data acquisition device 34 is transmitted to local controller 36 for transmission to database 78, and local controller 36 is connected to remote analysis system 50 via the Internet 40; thus database 78 has the ability to communicate with remote analysis system 50 via the Internet 40, as seen in Figure 3)** [Column 15, lines 17-20, Column 17, lines 25-27, Figure 3];

(b) wherein said server apparatus, when anomaly information has been produced, transmits said anomaly information **(fault code)** to anomaly handling terminal apparatus through said third communication means **(work order 166 is transmitted electronically to a handheld device 168 associated with specific maintenance personnel assigned to carry out the maintenance; work order 166 is sent electronically to appropriate maintenance personnel that contains all of the critical operating data required to effectively schedule and carry out the maintenance)** [Column 17, lines 5-9, 21-27]; and

(c) wherein said anomaly handling terminal apparatus performs anomaly handling for said construction machine at which said anomaly occurred, based on said anomaly information **(management report can advise the person or entity that owns or operates the asset 31; carrying out said work order to maintain the asset)** [Column 11, lines 42-44; Claim 9].

As per claim 29, Melby et al. teaches the work machine management system according to claim 25, wherein:

(a) an anomaly handling terminal apparatus **(handheld device 168)** is provided on the end where anomaly handling is performed for a construction machine at which an anomaly has occurred, and wherein said anomaly handling terminal apparatus and said main work machine are corrected by a third communication means configured to facilitate reciprocal communications **(handheld device 168 is in real-time two way communication with analysis controller database 78; data from data acquisition device 34 is transmitted to local controller 36 for transmission to database 78, and local controller 36 is connected to remote analysis system 50 via the Internet 40; thus database 78 has the ability to communicate with remote analysis system 50 via the Internet 40, as seen in Figure 3)** [Column 15, lines 17-20, Column 17, lines 25-27, Figure 3];

(b) wherein said main work machine transmits said anomaly information **(fault code)** to said anomaly handling terminal apparatus through said third communication means **(work order 166 is transmitted electronically to a handheld device 168 associated with specific maintenance personnel assigned to carry out the maintenance; work order 166 is sent electronically to appropriate maintenance personnel that contains all of the critical operating data required to effectively schedule and carry out the maintenance)** [Column 17, lines 5-9, 21-27]; and

(c) wherein said anomaly handling terminal apparatus performs anomaly handling for said construction machine at which said anomaly occurred, based on said anomaly information **(management report can advise the person or entity that owns or operates the asset 31; carrying out said work order to maintain the asset)** [Column 11, lines 42-44; Claim 9].

As per claim 30, Melby et al. teaches a management system for work machines that perform prescribed work by operation of a plurality of work machines, comprising:

(a) a plurality of work machines, said plurality of work machines being connected by a first communication means configured to facilitate reciprocal communications [see analysis of claim 1(a) above];

(b) a server apparatus, wherein at least one main working machine of said plurality of work machines is connected to the server apparatus by a second communication means configured to facilitate reciprocal communications [see analysis of claim 1(b) above];

(c) work machine information detection means for detecting work machine information are provided in each of said plurality of work machines [see analysis of claim 1(c) above];

(d) a database for storing data for managing said plurality of work machines, and management information production means for producing management information based on said work machine information and on said data stored in said database, provided at said server apparatus end [see analysis of claim 1(d) above];

(e) in conjunction with work progress of said plurality of work machines, said work machine information is detected by said work machine information detection means, and said work machine information so detected is transmitted to said at least one main work machine through said first communication means [see analysis of claim 1(e) above];

(f) said at least one main work machine transmits said transmitted work machine information to said server apparatus through said second communication means [see analysis of claim 1(f) above];

(g) said server apparatus produces said management information based on said transmitted work machine information and on said data stored in said database, and transmits said management information to said at least one main work machine through said second communication means [see analysis of claim 1(g) above];

(h) said at least one main work machine transmits work instructions to other work machines of said plurality of work machines through said first communication means, based on said transmitted management information [see analysis of claim 1(h) above];

(i) judgment means, provided in said main work machine for judging whether communications are possible or impossible by said second communication means between said main work machine and said server apparatus **(receiver 35 can send out a query signal on a predetermined basis to be received by the receiver 35 when the two units 32 and 35 are sufficiently close to communicate reliably with one another)** [Column 7, lines 38-53];

(j) wherein, when it is judged by said judgment means that communications by said second communications means are impossible, first latest management information received by said main work machine via said second communication means and second latest work machine information received by said main work machine via said first communication means are stored in said memory by said main work machine **(sensed operating conditions of the forklifts 31 are preferably stored in a memory of the data acquisition device 32 for subsequent communication to a remote analysis system)** until it is judged by said judgment means that communications by said second communication means have become possible **{when the data acquisition unit 32 contacts receiver 35, the receiver 35 can send a first signal back to the data acquisition unit 32 to begin transmitting the acquired data; at the completion of the data transfer, the receiver 35 can send a second signal back to the data acquisition unit 32 to acknowledge the receipt of the transmitted data; thus, when communications are possible, data is transmitted between work machines}** [Column 6, line 65 – Column 7, line 1, Column 7, lines 45-51].

As per claim 31, Melby et al. teaches a work machine management system for work machines that perform prescribed work by operation of a plurality of work machines, comprising:

a processor **{data is transmitted via the Internet, a plurality of networked computers that each have a data processor}**;

(a) a plurality of work machines, said plurality of work machines being connected by a first communication means configured to facilitate reciprocal communications [see analysis of claim 1(a) above];

(b) at least one main work machine of said plurality of work machines is connected to said processor by a second communication means configured to facilitate reciprocal communications [see analysis of claim 1(b) above];

(c) work machine information detection means for detecting work machine information, provided in each of said plurality of work machines [see analysis of claim 1(c) above];

(d) a database for storing managing data, for managing said plurality of work machines, and management information production software for producing management information based on said managing data and said work machine information, operably connected to said processor [see analysis of claim 1(d) above];

(e) said processor is configured to facilitate, when said at least one main work machine is determined, transmitting said managing data stored in said database and said management information production software to said main work machine through said second communication means [see analysis of claim 1(g) above];

(f) wherein, in conjunction with work progress of said plurality of work machines, said work machine information is detected by said work machine information detection means provided in said plurality of work machines, and said work machine information is transmitted to said main work machine or machines through said first communication means [see analysis of claim 1(e) above];

(g) wherein said main work machine produces said management information, based on work machine information transmitted from said plurality of work machines through said first communication means, and on managing data and management information production software transmitted from said management system through said second communication means [see analysis of claim 1(g) above], said main work machine manages said plurality of work machines by transmitting said management information to other work machines of said plurality of work machines in accordance with said first communication means, based on said management information said main work machine [see analysis of claim 1(h) above], updates said managing data, and said main work machine transmits said managing data so updated to said management system, by said second communication means, every time a certain time period elapses **(receiver 35 is connected to local controller 36 and is programmed to periodically transmit the information stored therein to the remote analysis system 50 for analysis;** [Column 8, lines 23-25]; and

(h) said processor updates content stored in said database using said managing data **(data in the form of new commands, program updates, instructions, and the like can be sent to the data acquisition unit 32 from the receiver 35)** [Column 7, lines 54-61].

As per claim 32, Melby et al. teaches a work machine management system for work machines that perform prescribed work by operation of a plurality of work machines, comprising:

a processor **{data is transmitted via the Internet, a plurality of networked computers that each have a data processor}**;

(a) a plurality of work machines, wherein said plurality of work machines is connected by a first communication means configured to facilitate reciprocal communications [see analysis of claim 1(a) above];

(b) at least one main work machine of said plurality of work machines is connected to the processor **(remote analysis system 50)** by a second communication means configured to facilitate reciprocal communications [see analysis of claim 1(b) above];

(c) work machine information detection means for detecting work machine information, provided in each of said plurality of work machines [see analysis of claim 1(c) above];

(d) a database for storing data for managing said plurality of work machines, and management information production software for producing management information based on said managing data and work machine information, provided at said processor [see analysis of claim 1(d) above];

(e) wherein when said at least one main work machine is determined, said managing data **(operational characteristics of the particular asset 11 being tracked, such as the physical requirements or limitations of the asset (mast height, load capacity, types of tires, for example), the type of fuel used, and the period of time or usage between the performance of periodic maintenance; time duration of use (and non-use), distances traveled, the extent of fork usage, the**

nature of hydraulic system utilization, and the like) stored in said database **(analysis controller database 78)** and said management information production software are written to said at least one main work machine **(data acquisition device 32 is provided on each of the forklifts 31 for sensing and storing one or more characteristics of the associated forklift)** [Column 4, lines 34-44, Column 6, lines 48-50, 52-63];

(f) wherein, in conjunction with work progress of said plurality of work machines, said work machine information is detected by said work machine information detection means provided in said plurality of work machines, and said work machine information so detected is transmitted to said at least one main work machine through said first communication means [see analysis of claim 1(e) above];

(g) wherein said at least one main work machine produces said management information, based on work machine information transmitted from said plurality of work machines to said at least one main work machine in accordance with said first communication means, and on said managing data and management information production software [see analysis of claim 1(g) above], said at least one main work machine manages said plurality of work machines by transmitting said management information to other work machines of said plurality of work machines in accordance with said first communication means, based on said management information so produced [see analysis of claim 1(h) above], and said at least one main work machine updates said managing data **(receiver 35 is connected to local controller 36 and is**

programmed to periodically transmit the information stored therein to the remote analysis system 50 for analysis; [Column 8, lines 23-25]; and

(h) content stored in database in said processor is updated by the at least one main work machine writing said updated managing data in accordance with said second communication means to said processor **(data in the form of new commands, program updates, instructions, and the like can be sent to the data acquisition unit 32 from the receiver 35)** [Column 7, lines 54-61].

Claim Rejections - 35 USC § 103

12. Claims 2-3, 7-8, 16-18 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Melby et al. (U.S Patent 6,952,680).

As per claim 2, Melby et al. does not explicitly teach wherein said at least one main work machine includes a display device, and wherein said management information transmitted from said server apparatus to said at least one main work machine is displayed on the display device.

Official Notice is taken that displaying information is old and well known in the art. Melby et al. provides for work order 166 to be transmitted electronically to a handheld device 168 associated with specific maintenance personnel assigned to carry out the maintenance [Column 17, lines 21-30]. Melby teaches the generation of an electronic

management report, which is delivered through the Internet 40. Melby discloses that the management report can advise the person or entity that owns or operates the asset. Melby also cites the benefit of analyzing relevant information to anticipate problems before they affect asset utilization [Column 12, lines 8-15]. Thus, the Examiner asserts that the management report contains written instructions or data that require some sort of display mechanism to be viewed and subsequently executed to avoid anticipated problems that would affect asset utilization; thus, it would have been obvious to one of ordinary skill in the art to modify the teachings of Melby et al. to display management information transmitted form a server apparatus, because doing so would enable the owner or operator of said asset to proactively take measures to avoid problems that affect asset utilization, thereby increasing the availability of work machines required to perform scheduled work.

As per claim 3, Melby et al. does not explicitly teach said prescribed work comprises a plurality of work processes; and said at least one main work machine is determined for each of those work processes.

However, Official Notice is taken that it is old and well known in the art for work plans to comprise a plurality of tasks. Official Notice is also taken that it is old and well known in the art to assign resources to scheduled tasks. Melby et al. is directed towards actively managing the operation of assets (machines); thus assigning resources to each of the scheduled tasks comprising a work plan would enable a user to ensure that

adequate resources are available to perform all the scheduled work comprising a work plan. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify the teachings of Melby et al. to assign work machines to each of a plurality of work processes comprising a scheduled work plan, because doing so would allow Melby et al. to effectively manage and allocate resources to meet the demand necessitated by work orders. Maximizing productivity and reducing operating costs and administrative burdens is a goal of Melby et al. [Column 2, lines 45-46].

As per claim 7, Melby et al. does not explicitly teach wherein said at least one main work machine includes a display device, and wherein said scheduled work plan transmitted from said server apparatus to said at least one main work machine is displayed on the display device.

Official Notice is taken that displaying information is old and well known in the art. Melby et al. provides for work order 166 to be transmitted electronically to a handheld device 168 associated with specific maintenance personnel assigned to carry out the maintenance [Column 17, lines 21-30]. Melby teaches the generation of an electronic management report, which is delivered through the Internet 40. Melby discloses that the management report can advise the person or entity that owns or operates the asset. Melby also cites the benefit of analyzing relevant information to anticipate problems before they affect asset utilization [Column 12, lines 8-15]. Thus, the Examiner asserts that the management report contains written instructions or data that require some sort

of display mechanism to be viewed and subsequently executed to avoid anticipated problems that would affect asset utilization; thus, it would have been obvious to one of ordinary skill in the art to modify the teachings of Melby et al. to display management information transmitted form a server apparatus, because doing so would enable the owner or operator of said asset to proactively take measures to avoid problems that affect asset utilization, thereby increasing the availability of work machines required to perform work. Maximizing productivity and reducing operating costs and administrative burdens is a goal of Melby et al. [Column 8, lines 60-65].

As per claim 8, Melby et al. does not explicitly teach wherein said scheduled work plan comprises a plurality of work processes; and said at least one main work machine is determined for each of those work processes.

Official Notice is taken that it is old and well known in the art for work plans to comprise a plurality of tasks. Official Notice is also taken that it is old and well known in the art to assign resources to scheduled tasks. Melby et al. is directed towards actively managing the operation of assets (machines); thus assigning resources to each of the scheduled tasks comprising a work plan would enable a user to ensure that adequate resources are available to perform all the scheduled work comprising a work plan. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify the teachings of Melby et al. to assign work machines to each of a plurality of work processes comprising a scheduled work plan, because doing so would

allow Melby et al. to effectively manage and allocate resources to meet the demand necessitated by work orders. Maximizing productivity and reducing operating costs and administrative burdens is a goal of Melby et al. [Column 2, lines 45-46].

As per claim 16, Melby et al. teaches a scheduled work plan production apparatus that, in cases where a scheduled work plan is produced according to work request data indicating particulars of work requested by an ordering party, a plurality of work machines is obtained, and work is caused to be done using said plurality of work machines so obtained, based on said produced scheduled work plan, produces said scheduled work plan, comprising:

a server **(remote analysis system 50)** [Column 7, lines 8 , Figure 3];

(a) a database for storing a schedule and performance results data indicating a relationship between a scheduled work plan previously produced and actual work performance results as performed on basis of said scheduled work plan at the server apparatus [see analysis of claim 14(a) above];

(c) a terminal apparatus on said ordering party end, wherein said terminal apparatus, said server apparatus, and said plurality of work machines are connected by a communication means configured to facilitate reciprocal communications [see analysis of claim 14(b) above];

(d) wherein said work request data are input from said terminal apparatus to said server apparatus [see analysis of claim 14(c) above];

(e) wherein said server apparatus is configured to facilitate producing a scheduled work plan responsive to the work request data and to the schedule and the performance results data, transmitting said scheduled work plan to said plurality of work machines and to said rental/production end terminal apparatus through said communication means, and updating the schedule and the performance results data in said database [see analysis of claim 14(d) above];

(f) said plurality of work machines performing work based on the scheduled work plan from said server apparatus, and transmitting actual work performance results as performed on basis of said scheduled work plan to said server apparatus by said communication means [see analysis of claim 14(e) above];

(g) wherein said server apparatus updates said database with the actual work performance results [see analysis of claim 14(f) above].

Melby et al. does not explicitly teach the inclusion of a rental/production end terminal apparatus on a communication means. However, connecting data terminals to an electronic communications network, such as the Internet, is a step that is old and well known in the art. Furthermore, the step of connecting an additional terminal apparatus to the electronic communications network taught by Melby et al. can be performed in a similar fashion to the ordering party terminal, meeting the limitation of the claim.

Melby et al. does not explicitly teach:

(b) a rental/production end terminal apparatus for renting or producing said work machine, said rental/production end terminal apparatus being provided on the ends where rental/production is performed; and

(h) wherein said rental/production end terminal apparatus plans rental or production based on said scheduled work plan from said server apparatus.

However, handheld device 168 is in real-time two way communication with analysis controller database 78 and is enabled to update said database regarding required and scheduled maintenance. The system is further enabled to automatically order replacement parts. The need to rent or produce additional work machines may be based on information entered by the handheld device. Further, the system can be enabled to automatically order replacement/additional machines, in a fashion similar to ordering replacement parts. Said orders are propagated throughout the analysis system 50. The system provides for automatic generation of reports for required maintenance work, and can be enabled to generate order reports for required additional/replacement work machines. Therefore, handheld device 168 is capable of facilitating such actions, meeting the limitations of the claim.

Furthermore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify the teachings of Melby et al. to include a terminal for renting/producing work machines because the resulting invention would enable the system to obtain additional resources, as needed, to provide an adequate number of

work machines to perform prescribed work without suffering costly delays (time and financial, as resulting from a decreased number of available work machines, delaying the completion of said prescribed work).

As per claim 17, Melby et al. does not explicitly teach the work machine management system according to claim 1, further comprising:

(a) an information display for displaying information outside of a work site where said plurality of work machines are operating is provided in one or more of said plurality of work machines;

(b) wherein said server apparatus produces information relating to said work site, based on the work machine information, and on the data stored in said database, and transmits said information relating to said work site to said main work machine through said second communication means; and

(c) said main work machine displays said information relating to said work site on said information display.

However, it has been admitted as prior art, as a result of improperly/untimely challenged Official notice that it is old and well known in the arts to notify relevant parties of the status and availability (or unavailability) of work machines at a site. Melby et al. collects a plurality of data on the usage of work machines to determine whether the responsibility for the maintenance being performed on the asset should rest with the manufacturer, supplier, owner or user of the asset [Column 9, lines 38-44] and also to

analyze a knowledgebase of relevant information to analyze appropriate trends [Column 12, lines 9-21], such as those pertaining to the need for preventative maintenance. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify the teachings of Melby et al. to include an information display at a work site so that appropriate personnel can be notified of a need to procure replacement work machines, obtain a work order, or to reconfigure a work schedule to compensate for the status of a work machine on which a main work machine is dependent on to perform work.

As per claim 18, Melby et al. teaches the work machine management system according to claim 17, wherein:

(a) said information display is deployed on a work machine other than said main work machine **(handheld device 168)**; and

(b) said main work machine transmits transmitted information relating to said work site to another work machine through said first communication means **(each of the forklifts 31 is further provided with a transmitter 33 or other communications system for transmitting the acquired data from the data acquisition device 32 to the remote analysis system 50 for analysis)** and causes said information to be displayed on said information display deployed on said other work machine **(handheld device 168 is in real-time two way communication with analysis controller database, thus, dealer billing systems, inventory listings, customer work order approval records, fleet management information can be accessed by handheld**

device 168; handheld device 168 is used to update database 78 including labor information and an identification of any parts required to effect a repair) [Column 7, lines 5-8, 14-27, 38-39].

As per claim 22, Melby et al. teaches a work machine management system of work machines that perform prescribed work by operation of a plurality of work machines inside a work site, comprising:

(a) environmental condition measurement means **(data acquisition device 32)** for measuring environmental conditions **(any desired operating conditions of the forklift 31 that might be considered important in making effective management decisions regarding the operation of the forklift 31; distances traveled)** in a periphery of a work site, provided in the periphery of said work site [Column 6, lines 48-63];

(b) at least one an information display for displaying information towar outside of a work site, at least one of installed in the periphery of said work site, and provided in one or more of said plurality of work machines **(wireless communications system 34 is adapted to transmit signals that are representative of the sensed operating conditions of the forklifts 31 to a receiver 35 that is provided at a fixed location within the environment in which they are operated; receiver 35 may be provided on movable structures that move about the environment to receive the information transmitted thereon)** [Column 7, lines 24-37];

(c) communication means for connecting said environmental condition measurement means with a server apparatus and connecting said server apparatus with at least one information display, configured to facilitate reciprocal communication **(each of the forklifts 31 is further provided with a transmitter 33 or other communications system for transmitting the acquired data from the data acquisition device 32 to the remote analysis system 50 for analysis)** [Column 7, lines 5-8, 14-27, 38-39];

(d) display information production means, provided at a server apparatus site, for producing environmental conditions display information based on measured environmental condition values and on data stored in a database **(receiver 35 that is provided at a fixed location within the environment in which they are operated; receiver 35 may be provided on movable structures that move about the environment to receive the information transmitted thereon** [Column 7, lines 24-37]; wherein

(e) said measured environmental conditions values are measured by said environmental condition measurement means, in conjunction with work progress of said plurality of work machines, and are transmitted from said environmental condition measurement means to said server apparatus through said communication means **(each of the forklifts 31 is further provided with a transmitter 33 or other communications system for transmitting the acquired data from the data acquisition device 32 to the remote analysis system 50 for analysis)** [Column 7, lines 5-8, 14-27, 38-39]; and

(f) said server apparatus produces environmental condition display information **(information relating to the operational characteristics of the asset 11 being tracked, or operating conditions of the forklift 31 that might be considered important in making effective management decisions regarding the operation of forklift 31)**, based on measured environmental conditions values **{data provided by transmitter 33}** and on data stored in said database **(analysis controller database 78)**, said server apparatus transmits said environmental condition display information to said information display through said communication means **(receiver 35 that is provided at a fixed location within the environment in which they are operated; receiver 35 may be provided on movable structures that move about the environment to receive the information transmitted thereon; receiver 35 is connected to local controller 36, which is connected to remote analysis system 50 by conventional modem 37 or electronic communications network, such as the Internet)**, and said server apparatus causes said environmental condition display information to be displayed on said information display [Column 4, lines 34-44, Column 6, lines 52-63, Column 7, lines 24-37, 61-62, Column 8, lines 23-30].

Melby et al. does not explicitly teach the measurement of environmental conditions including noise levels and toxic chemical concentrations. However, Official Notice is taken that it is old and well known in the art to collect data regarding environmental conditions. Local, federal and international ordinances, regulations, and laws govern acceptable noise levels and toxic chemical concentration limits for areas in

which work is performed. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify the teachings of Melby et al. to measure noise levels and toxic chemical concentrations, because doing so would allow Melby et al. to perform work orders while simultaneously being in compliance with local, federal and international ordinances, regulations, and laws governing the noise, pollution, and toxic levels of the performed work, thereby avoiding costly fines and maintaining public safety, and minimizing the inconvenience to surrounding parties.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter Choi whose telephone number is (571) 272 6971. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tariq Hafiz can be reached on (571) 272-6729. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

PC

September 4, 2006

Peter Choi
Examiner
Art Unit 3623

C. Michelle Tarae
C. Michelle Tarae
Patent Examiner
Art Unit 3623